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Research Memorandum
RES-15, April 19, 1963

TO : The Secretary

THROUGH: S/S

FROM : INR - Thomas L. Hughes *Thomas L. Hughes*

SUBJECT: Effects of Loss of Cuban Sugar on Free World Sugar Market

Declining sugar stocks and rising prices are of growing concern to consumers and importing nations throughout the Free World. This paper analyzes the magnitude of the problem and its relationship to reduced shipments of Cuban sugar to Free World markets and the loss of Cuban reserves.

ABSTRACT

The drastic reduction in shipments of Cuban sugar to Free World markets in recent years together with rising consumption are rapidly exhausting previously large Free World stocks. Sugar prices, already more than 7 cents per pound in April of this year compared with 3 cents last summer, are likely to increase even further unless supplies are increased during the next crop year.

Rapidly rising sugar prices reflect the fact that two-thirds of all exports are sold under special agreements, leaving the remaining 6 million tons of free sugar to respond, price-wise, to market factors of supply and demand. The loss of Cuban stocks which, prior to 1960, were available in the event of shortages, has increased the tendency to price instability in the Free World.

Cuban exports--still roughly one-third of the world total--have increased by about 3.4 million metric tons to the Sino-Soviet Bloc but have declined by about 3.1 million to Free World markets between 1959 and the last two years (1961-62). Larger shipments from the Soviet Bloc to the Free World have made up only about 700,000 tons of this loss. During the same period annual Free World consumption has increased by about 3.5 million metric tons, but output has expanded only moderately.

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Further upward movements in sugar prices during the 1963-64 crop year may be avoided if Free World supplies are increased by at least 4 million metric tons, or about 10 percent above this year's availabilities, from either greater production or larger purchases from Communist countries. Although the USSR and, to an even greater extent, Communist China, could utilize more Cuban sugar, the present Soviet policy appears to involve avoidance of dependence on foreign sugar, while China lacks the foreign exchange for increased imports. Indeed the USSR may even sell some of its surplus sugar stocks of a million or more tons to the Free World through European Bloc countries which have had experience in the world sugar market. Moreover, the Soviets seem eager to have greater quantities of Cuban sugar marketed in the Free World. However, Cuba's export availabilities are declining as a result of decreasing production due to the agricultural diversification program, mismanagement, and the disruption of the labor force. Although recent unverified reports from sugar brokers and Cuban refugees predict a 1963 output of 3.5 million metric tons, or even less, information available as of early April 1963 indicates that, barring unfavorable weather or other adverse developments, Cuba's sugar production this year should be approximately 4 million metric tons, as compared with 4.8 million last year.

Although the Free World has the capability of fully replacing Cuban supplies over a period of time, high sugar prices may be expected to prevail in the interim. A concomitant benefit of this situation will be an increase in foreign exchange receipts by Free World sugar exporting countries.

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Present Free World Sugar Position

The four-year rise in total Free World sugar stocks, which began in the 1957-58 crop year, reached a high point of 9 million metric tons in 1961 and stocks have been declining ever since.^{1/} It is estimated that almost 40% of these reserves had been consumed by March 1963. This stock drawdown has been reflected in the rapid rise in the free market price of sugar from about 3 cents per pound during the period 1959 to August 1962 to over 7 cents per pound in April, 1963.

^{1/} Includes Cuban stocks in 1957-58 but not in 1961. Current Cuban stocks are believed to be negligible.

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The rapid reduction of sugar stocks in the Free World has resulted from rising consumption of sugar together with the decline in supplies. Smaller supplies are attributable to (1) decreased imports from Cuba due to lower sugar output and diversion of exports to the Communist world, (2) the reduction in Free World sugar production and exports as a consequence of a five-year period of very low prices and (3) bad weather in the 1962-63 crop year, particularly in Western Europe.

The diversion of Cuban sugar from Free World markets since 1960 has been spectacular--shipments declined from 4.8 million metric tons in 1959 to about 1.5 million in 1961 and 1962. (Table 1.) Although Cuban shipments to the Communist Bloc have been partly offset by increased exports to Free World countries from the Bloc (either by transshipment or by direct exportation), the shift in Cuban sugar trade has led to a net loss of at least 2.7 million metric tons to the Free World's annual sugar supplies between 1959 and 1962. During the same period Free World effective demand increased by an estimated 3.2 million tons (Table 2).

The bumper world sugar crop of 1960-61 served to mask both the effects of diminishing sales from Cuba and the inevitably depressing impact on planned production of rising stocks and low free market prices. However, the failure of the Free World to increase sugar output rapidly enough in 1961-62 to meet rising demand and to offset reduced supplies from Cuba resulted in a continuous decline of stocks which has not yet ceased. The response of free market prices to changes in output and in stocks is shown by the data in Table 2. It will be noted that prices do not rise until easily available stocks have been brought down. This phenomenon occurred in 1957 as well as in 1963. In both instances current supplies ran well below demand before prices rose. It is believed that price rises during the past 6 months were accelerated by erratic factors such as strikes in the Dominican Republic and administrative difficulties in Philippine sugar production which reduced sugar supplies from these countries.

The extreme fluctuations in the free market price of sugar result from several factors:

1. Only about one-third of the sugar moving in world trade is sold on the open market. The other two-thirds is sold at previously contracted prices, under multilateral and bilateral agreements. As a consequence the total adjustment of sugar prices to changes in supply must be effected through the market price of only one-third of the sugar traded. This tends to greatly exaggerate price fluctuations of free market sugar as compared with the price responses to be expected if all of the sugar were freely traded.

2. Sugar has a very low price elasticity of demand. As the standard of living of a sugar importing country rises, the demand tends first to increase rapidly, and then to stabilize. At any given income level, however, the demand for sugar is very insensitive to price changes. The low price elasticity of demand and the instability of prices in response to crop yields are the leading reasons for the wide prevalence of agreements and unilateral controls which fix the prices of two-thirds of the international sugar trade.

3. The above-mentioned tendencies toward instability in the free market price of sugar have now been magnified by the loss of Cuban sugar stocks, some of which were U.S. owned, and all of which were readily available in the event of shortages in current production. For example, in the crop years 1950-51 through 1954-55, total Free World stocks averaged 5 million metric tons of which 24%, or 1.2 million represented Cuba's share. In March 1963 total world stocks were estimated at about 5.5 million metric tons but only very small amounts are likely to be drawn down to meet import requirements of other countries unless there is further significant increase in prices.

Total new sugar supplies for the Free World are estimated at 38.1 million metric tons for the crop year 1962-63 as compared with 38.2 million in 1961-62. Output is to increase by only an estimated 300,000 metric tons, not quite enough to compensate for reduced imports from Cuba and other Bloc countries between these two years. The short-fall as compared with Free World consumption may be as much as 3.4 million metric tons by mid-1963, the end of the current crop year. Stocks were not reduced in 1962 as much as would have been expected from consumption trends because many producing countries hold sugar for export rather than consume it when prices are rising. Actual consumption was thus held down. Free World consumption in 1963, however, is expected to be well above the 1962 level unless prices to consumers rise to very high levels.

The drain on sugar stocks will thus continue at least until the 1963-64 production comes on the market. This does not mean a chronic shortage of sugar is to be anticipated. The output of sugar in many countries, like the percentage of the crop exported, will be stimulated by high prices, provided weather conditions are favorable. In the long run, the sugar production potential of the Free World is more than adequate to meet requirements at reasonable prices without access to Cuban supplies, assuming that storage facilities are constructed to replace those previously provided by Cuba. This does not preclude the possibility, however, of a short-term sugar shortage and further price increases during the next year.

Possible Short-term Sugar Crisis

A very serious, temporary sugar crisis may develop if Free World supplies are not increased substantially during the crop year 1963-64.

Free World sugar stocks which stood at 7.2 million metric tons in 1962 may well decline to about 3.8 million before the 1963-64 crop starts to come on the market. If Free World production were not increased in 1963-64 above the 1962-63 level, the shortfall could deplete stocks entirely. The average annual increase in Free World sugar consumption is estimated at close to 1.2 million metric tons which would result in a theoretical deficit of 4.6 million for the year.

Long before stocks were exhausted, prices would have climbed extremely rapidly. To avoid this situation, Free World sugar stocks would have to be kept no lower than their anticipated 1963 level. This would necessitate an increase in Free World sugar production of at least 4 million metric tons, or about 10%, above 1962-63, assuming no increased Free World procurement from Cuba and the Soviet Bloc. Rebuilding stocks to the 1962 level of 7.2 million tons would require an increase in production of almost 8 million tons (over 20%) in 1963-64. Since such a large increase in production is unlikely in one year, high sugar prices may be expected to prevail for several years. To make the Free World independent of Cuban and Soviet Bloc supplies would require an increase in output of about 7 million metric tons per year (almost 20%) in order to avoid further stock drawdown. This compares with a 4 million ton increase if purchases from Communist countries continue at their present level of about 3 million tons. Soviet data indicate USSR sugar reserves of about 4.3 million metric tons as of the end of 1962, compared with only 2.4 million at the end of 1958. This would suggest that the Soviet Union could easily make available to the Free World a million or more metric tons of sugar in any manner it considers advantageous. The existence of this level of sugar stocks has not been confirmed, however, and it is possible that it is being exaggerated for propaganda purposes. The following tabulation shows estimates of Soviet apparent consumption, reported stocks and implied actual consumption of sugar for the period 1959-62:

Apparent Consumption	Reported Stocks		Implied Actual Consumption
	End of Previous Year a/	Change During Year	
(in millions of metric tons, refined basis) b/			
1959	6.1	2.4	5.5
1960	6.2	3.0	6.0
1961	8.3	3.2	7.1
1962	7.4	4.4	7.5
1963	--	4.3	--

a/ Based on Soviet data. Some U.S. estimates suggest Soviet stocks may be even larger.

b/ About 8% less than raw sugar equivalent.

Recent reports indicate that the USSR may be preparing to increase its sales to the Free World by indirect transactions through the European Bloc countries (e.g. Poland and Czechoslovakia) which have experience in exporting sugar to Free World markets. There are also well confirmed reports that the USSR is encouraging Cuba to market more of its sugar in the Free World. The probabilities of increased supplies of Communist produced sugar may serve as some protection against a serious sugar shortage in the Free World in the next two years.

Geographical Shifts in Production and Imports

Aside from inadequate total sugar production, the Free World sugar market has had to adjust in 1962-63 to a changed geographical pattern of production. Total sugar production in the Free World in 1962-63 is 300,000 metric tons above the previous year's level. However, production is smaller by 100,000 metric tons in the Western Hemisphere and 400,000 in Western Europe while that of Africa, Asia and Oceania is 800,000 metric tons greater (See Table 3).^{1/} Oceania is providing 500,000 tons of the increase.

Details of the pattern of world trade in sugar in the crop year 1962-63 are not yet complete. During this period Western Europe is expected to purchase about 4.2 million metric tons, compared with 3.9 million in calendar year 1961, to make up for the decline in local output. Japan, whose foreign purchases are rising at a rate of about 100,000 metric tons annually, will probably import about 1.4 million tons during the 1962-63 crop year.

Impact of Loss of Free World Control of Cuban Sugar

Although the world price of sugar would ultimately have had to rise to stimulate output, Free World stocks would not have been reduced prior to the 1962-63 crop year if Cuba had not defected to the Communist Bloc. Had Cuba continued to furnish average annual supplies of only 300,000 metric tons of sugar to the Bloc, as it did prior to 1960, and even if growing demand for sugar within the Bloc had wiped out its net exports of sugar, the Free World sugar position would have been approximately as follows:

^{1/} Indian production would have increased by more than 100,000 metric tons between 1961-1962 and 1962-1963 if it had not been restricted by the government because of low prices.

Crop Year	Hypothetical Supply from Current Production	Consumption	Hypothetical Change in Stocks
1959-1960	40.0	38.3 a/	+ 1.7
1960-1961	42.9	39.1 a/	+ 3.8
1961-1962	40.6	40.3 a/	+ 0.3

a/ Assumes 3% increase in consumption per year. Excludes Cuban consumption since 1960-61.

Comparison of the hypothetical supply and stock change data in the preceding tabulation with the actual Free World situation shown in Table 2 indicates that the sugar price rise began in 1962 only because the loss of Cuba's sugar to the Free World had already begun to reduce Free World stocks.

In the years immediately before the Cuban revolution, Cuba's sugar production was about 12 to 13 percent of total world output and its exports were over one-third of the world total (Table 4). Of equal importance with Cuba's sugar production were its storage facilities which contained a reserve of sugar readily available in years when production was low. These facilities have been lost to the Free World and have not been replaced in the U.S. or elsewhere in the Western Hemisphere. The possible depletion of stocks and the need for the U.S. to purchase substantial amounts of sugar at high free market prices may create serious difficulties in the administration of the U.S. Sugar Act.

The absence of the large Cuban reserve of sugar supplies in the Free World is forcing a greater dependence of sugar importing countries on many smaller suppliers, or alternatively, the production of a larger portion domestically. Japan's negotiation of sugar import agreements with many producing countries is considered one of the factors causing unusually rapid free market price increases in recent months. The purchase by the United States of Mexico's sugar reserves may also have had its effect on prices. Moreover, many Central American countries are loath to increase their output to replace Cuban production because of uncertainties as to the stability of world prices and the demand for their additional output. In view of the possible re-entry of Cuba into the market, these countries are seeking firm purchase contracts as a precondition for increasing their sugar production. On the other hand, present high prices and price uncertainties will doubtless stimulate Europe once more to increase its sugar output for domestic consumption.

The result of the diversion of Cuba's sugar has been to provide the USSR and its Bloc with several million tons of additional imported sugar annually for their domestic use. Although the Bloc can meet its own rising sugar needs from indigenous output, the most productive sugar land in the USSR is already utilized. Furthermore, the USSR has inadequate fertilizer supplies for its present rate of agricultural expansion, and sugar beets require heavy fertilization. For these reasons accessibility to Cuban sugar may be more important to the USSR in the future than at present. Since present Soviet policy appears to be based on the avoidance of dependence on foreign sources for sugar, however, the USSR is not attempting to increase its purchases from Cuba but is encouraging further shipments to the Free World. Slightly more than a million tons of Cuban sugar were shipped to various non-Bloc countries in 1962, chief of which were Japan (430,000 tons), Morocco(265,000), and Egypt(over 100,000).

Cuba has an agreement to export one million metric tons of sugar annually to Communist China. This agreement is being carried out, and in return China is supplying rice, other products and perhaps some foreign exchange remittances in settlement. As it develops economically, China will have a huge potential for sugar consumption. Its purchases of sugar would apparently increase even now if it had more foreign exchange available.

Cuban sugar output is declining and thus total exports may be expected to fall during 1963. Although final Cuban production figures will not be available until after the end of the crop year, in mid-1963, production will certainly be well below the 1962 level of 4.8 million metric tons. U.S. estimates made during March placed Cuba's sugar production in the current crop year in the range of 3.8 to 4.5 million metric tons, but subsequent April estimates indicate a smaller output ranging from 3.6 to 4.1 million metric tons. The March estimate of 4.2 million tons is shown in the tables of this report, since figures for other areas of the world are those available as of that month.

The present decline in Cuba's sugar output is variously ascribed to the agricultural diversification program, weather conditions, agricultural mismanagement, and labor shortages due to economic and political factors. Although recent reports from Cuban refugees and other intelligence sources estimate this year's production as low as 3.5 million tons, sugar production trends for the last two months indicate that, if weather or other factors do not interfere, Cuba's sugar output in 1963 should be approximately 4 million tons. However, excessive rains during April and May, the early onset of the rainy season, or inefficiency in harvesting could bring production well below 4 million tons.

When once the Free World has adjusted its production of sugar and the control of sugar stocks to take account of the loss of Cuban supplies, attempts by Cuba to re-enter the Free World market with export surpluses of the order of the previous volume of 5 million or more metric tons of sugar per year would bring about a collapse of prices and difficulties for high cost producers who had expanded output for the free market. Further reductions in Cuba's sugar output which might result, for example, from greater diversification of its agriculture, would ease the problem of the country's reabsorption into an orderly Free World market.

Table 1. Exports of Centrifugal Sugar from Cuba to Free World and Sino-Soviet Bloc and Net Exports from Bloc to Free World, 1959-62.
(in millions of metric tons or raw sugar and raw sugar equivalent)

	1959	1960	1961	1962
A. Total Cuban Exports	4.9	5.6	6.3	5.2
1. To Free World	4.6	3.3	1.5	<u>est.</u> 1.5
1. To Sino-Soviet Bloc				
USSR	0.3	1.6	3.3	<u>est.</u> 2.1
European Bloc	none	0.2	0.5	0.6
China	<u>none</u>	<u>0.5</u>	<u>1.0</u>	<u>1.0</u>
Sub-total to Bloc	0.3	2.3	4.8	3.7
B. Net exports from Sino-Soviet Bloc (except Cuba) to Free World	1.1	1.1	2.1	<u>est.</u> 1.5
C. Total Exports to Free World from Sino-Soviet Bloc and Cuba (A.1 plus B)	5.7	4.4	3.6	<u>est.</u> 3.0

n a - Not available

est. - Estimates based on incomplete or approximate data, but probably accurate within 100,000 metric tons.

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TABLE 2. FREE WORLD SUPPLIES, CONSUMPTION, AND PRICES OF CENTRIFUGAL SUGAR
 1954-1955 to 1962-1963 ^{a/}
 (in millions of metric tons of raw sugar and raw sugar equivalent)

Year	Crop Year Months	Production Plus Net Imports from Cuba and Sino-Soviet Bloc ^{b/}	Consumption	Apparent Changes in Stocks ^{c/}	Calendar Year	Average World Price Amount (cents/lb)
54-1955	Sept-Sept	32.3	31.9	+ 0.4	1955	3.24
55-1956	Sept-Sept	32.0	33.7	- 1.7	1956	3.47
56-1957	Sept-Sept	33.4	34.4	- 1.0	1957	5.16
57-1958	May-May	36.4	36.0	+ 0.4	1958	3.50
58-1959	May-May	39.8	37.2	+ 2.6	1959	2.97
59-1960	May-May	39.2	(38.3) ^{d/}	+ 0.9	1960	3.10
60-1961	May-May	40.3	(39.1) ^{d/}	+ 1.2	1961	2.91
61-1962	May-May	38.2	(40.3) ^{d/}	- 2.1	1962	2.89
62-1963	May-May	38.1 ^{e/}	(41.5) ^{d/}	- 3.4	1963 (Mar.)	6.60

Figures are latest available but are subject to revision on basis of surveys and studies now under way.

Imports from Cuba included and Cuban production excluded beginning in 1960-61.

Apparent stock changes differ from actual stock changes published by U.S. Department of Agriculture because the latter's figures (1) cover varying twelve-month periods for different countries, (2) exclude stocks in about 25 small countries and (3) reflect actual consumption (see footnote ^{d/} below).

Consumption since 1959-60 has been estimated to increase by 3% per year, since actual consumption data for all Free World countries are not available. Cuban consumption in 1960-61 and later years is excluded.

Estimate based on latest forecast.

Table 3. Production of Centrifugal Sugar by Geographic Area,
1961-62 and 1962-63 ^{a/}
(in millions of metric tons, raw basis)

Area	1961-62	1962-63	Increase (/) or Decrease (-)
<u>Free World</u>			
North and Central America	9.2	9.0	- 0.2
South America	<u>6.3</u>	<u>6.4</u>	+ 0.1
Sub-total Western Hemisphere	15.5	15.4	- 0.1
Western Europe	7.6	7.2	- 0.4
Africa	2.7	2.9	+ 0.2
Asia	7.5	7.6	+ 0.1
Oceania	<u>1.5</u>	<u>2.0</u>	+ 0.5
Sub-total Africa, Asia and Oceania	<u>11.7</u>	<u>12.5</u>	+ 0.8
Total Free World	34.8	35.1	+ 0.3
<u>Sino-Soviet Bloc</u>			
Soviet Union	6.6	6.4	- 0.2
European Satellites	4.3	3.9	- 0.4
Cuba	4.8	4.2 ^{a/}	- 0.6
Communist China	<u>0.9</u>	<u>0.9</u>	none
Total Sino-Soviet Bloc	<u>16.6</u>	<u>15.4</u>	- 1.2
Grand Total	51.4	50.5	- 0.9

^{a/} Based on estimates made in mid-March 1963; Subsequent estimates place production at about 4 million metric tons.